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33804 7590 02/10/2004

SUPREME PATENT SERVICES
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EXAMINER	
RAMSEY, KENNETH J	
ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 02/10/2004

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,965	02/09/2002	Hua-Chi Cheng	02117-URLX	2257

TITLE OF INVENTION: CATHODE PLATE OF A CARBON NANO TUBE FIELD EMISSION DISPLAY AND ITS FABRICATION METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$300	$1630	05/10/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:
A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 11/03) Approved for use through 04/30/2004.

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Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,965	02/09/2002	Hua-Chi Cheng	02117-URLX	2257

TITLE OF INVENTION: CATHODE PLATE OF A CARBON NANO TUBE FIELD EMISSION DISPLAY AND ITS FABRICATION METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$300	$1630	05/10/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
RAMSEY, KENNETH J	2879	445-024000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

☐ Issue Fee

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☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

☐ A check in the amount of the fee(s) is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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(Authorized Signature) (Date)

NOTE; The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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RAMSEY, KENNETH J	
ART UNIT	**PAPER NUMBER**
2879	

DATE MAILED: 02/10/2004

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 181 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 181 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

PTOL-85 (Rev. 11/03) Approved for use through 04/30/2004.

Notice of Allowability	Application No.	Applicant(s)	
	10/072,965	CHENG ET AL.	
	Examiner	Art Unit	
	Kenneth J. Ramsey	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *election made 11/6/2003*.
2. ☒ The allowed claim(s) is/are *1-19*.
3. ☒ The drawings filed on *09 February 2002* are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
   (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No. ____.
   (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
   (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1☒ Notice of References Cited (PTO-892)
2☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____
4☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5☐ Notice of Informal Patent Application (PTO-152)
6☐ Interview Summary (PTO-413), Paper No._____ .
7☒ Examiner's Amendment/Comment
8☒ Examiner's Statement of Reasons for Allowance
9☐ Other .

Kenneth J. Ramsey
Primary Examiner
Art Unit: 2879

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jason Z. Lin on January 26, 2004.

In regard to the changes below, it is also submitted that since the meaning of the term "photoconductive" is apparent from the context of the text, no change of claim scope is made below. In any event, at most, the change broadens the claims to reflect the correct scope of the claims to which applicants are entitled.

Applicants agent agreed to fax a paper indicating each occurence of "photoconductive" that appeared in the application so that the examiner could make the required changes by examiner's amendment. The examiner did not intend that the requirements of 37 C.F.R. 1.126 apply since the amendments were to be done by examiner's amendment merely using the fax as a guide since rule 126 does not apply to examiner' amendments. However, since the faxed changes comply with the rule for formal amendments, it was decided to paste the proposed changes directly into this examiner's amendment to avoid any error in the examiner's amendment.

Changes to the specification begin on page 3.

Changes to the claims begin on page 7.

Reasons for allowance appear on page 12.

AMENDMENTS TO THE SPECIFICATION:

Page 2, amend paragraph [0006] as:

[0006] This invention has been made to overcome the above-mentioned drawbacks of conventional field emission displays. The primary object is to provide a fabrication method for the cathode plate of a carbon nano tube field emission display. By combining photolithography process and etching process, the method uses a photosensitive ~~photoconductive~~ paste and an etchable dielectric material to fabricate the cathode plate of a carbon nano tube field emission display.

Pages 2-3, amend paragraph [0007] as:

[0007] According to this invention, the fabrication method for the cathode plate of a carbon nano tube field emission display comprises the preparation of a transparent substrate and the fabrication of a cathode electrode layer, a dielectric layer, a gate layer, and a CNT emission layer. During the fabrication, a transparent substrate having top and bottom surfaces is first prepared. A layer of photosensitive ~~photoconductive~~ paste is deposited on a surface of the transparent substrate. A pattern is then defined by a photolithography process and sintered to finish a cathode electrode layer.

Page 3, amend paragraph [0008] as:

[0008] The whole surface of the cathode electrode layer is deposited with a layer of etchable dielectric material. A layer of photosensitive ~~photoconductive~~ gate material is further deposited on the dielectric layer. Gate patterns are then printed by a photolithography process and sintered to finish a gate electrode layer. The gate pattern is

used as a protecting film to etch a portion of the dielectric layer not covered by the protecting film in a photolithography process and finally a CNT emission layer is filled on the cathode electrode layer to form a cathode plate structure.

Page 7, amend paragraph [0028] as:

[0028] Referring to FIG. 3a, the fabrication process of the cathode electrode layer comprises the steps or preparing a transparent substrate 201 having top and bottom surfaces, depositing a layer of photosensitive ~~photoconductive~~ paste 301 on a surface of the transparent substrate 201, defining a pattern by photolithography process and sintering to form a cathode electrode layer 203. The photolithography process includes the definition of a pattern by a photo-mask 303 after pre-bake, and the steps of photo exposure 305 and development. FIG. 3b illustrates a cross sectional view of a pattern of the cathode electrode layer 203 after developing.

Page 7, amend paragraph [0029] as:

[0029] In the preferred embodiments of the present invention, the photosensitive ~~photoconductive~~ paste can be made by mixing conductive metal powder and resin with solvent and photosensitive emulsion. The conductive metal powder can be silver (Ag), nickel (Ni), or chromium (Cr). The resin can be trimethylpentanediol monoisobutyrate, acrylic resin, or methyl acrylate. The sintering time is about 30 minutes at a temperature between 480 °C to 560 °C in an air atmosphere. The transparent substrate is usually a glass substrate.

Page 8, amend paragraph [0031] as:

[0031] FIG. 5 illustrates the fabrication process for the gate electrode layer of the cathode plate in a carbon nano tube field emission display according to the invention. A layer of photosensitive ~~photoconductive~~ gate material 501 is deposited on the whole surface of the dielectric layer 205. After photolithography process and sintering, a gate pattern 207 is formed. In this embodiment, the dielectric layer is sintered to burn away the residual organic material in each layer before depositing the layer of photosensitive ~~photoconductive~~ gate material 501. The sintering time is about 30 minutes at a temperature between 480 °C to 540 °C in an air atmosphere. The photolithography process includes defining a pattern by a photo-mask 503 after pre-bake, photo exposure 505 and developing. FIG. 5b illustrates a cross sectional view of a pattern of the gate electrode layer 207 after the development.

Pages 11-12, amend paragraph [0043] as:

[0043] In summary, this invention uses photosensitive ~~photoconductive~~ paste and etchable dielectric material and combines photolithography process and etching process to fabricate the cathode plate of a carbon nano tube field emission display. It overcomes the drawback of conventional screen printing methods in which the resolution of the printed pattern is difficult to increase. The advantages of this invention also include simple fabrication process, uniform thickness of the film, and accurate printed patterns. Also, the distribution of the electric field is uniform and the alignment at the post-process is not difficult.

Page 20, amend ABSTRACT as:

A method for fabricating the cathode plate of a carbon nano tube field emission display uses a photosensitive ~~photoconductive~~ paste and etchable dielectric material to fabricate the cathode plate. The method combines photolithography process and etching process to fabricate a cathode electrode layer, a dielectric layer, a gate layer, and a carbon nano tube emission layer. Packing this cathode plate structure with a conventional anode plate together can form a carbon nano tube field emission array. The distribution of the electric field is uniform and the alignment at post-process is made easy.

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A method for fabricating a cathode plate of a carbon nano tube field emission display, said method comprising the steps of:

   (a) preparing a transparent substrate;

   (b) depositing a layer of photosensitive ~~photoconductive~~ paste on said transparent substrate, patterning said layer of photosensitive ~~photoconductive~~ paste using a photolithography process, and sintering to form a cathode electrode layer;

   (c) depositing a layer of etchable dielectric material on said cathode electrode layer and said transparent substrate;

   (d) depositing a layer of photosensitive ~~photoconductive~~ gate material on said layer of dielectric material, patterning said layer of photosensitive ~~photoconductive~~ gate material using a photolithography process, and sintering to form a gate electrode layer;

   (e) using said gate electrode layer as a protecting film to pattern said layer of dielectric material with a photolithography process to form field emission regions above said cathode electrode layer; and

   (f) filling said field emission regions with a carbon nano tube emission layer on said cathode electrode layer.

2. (Currently Amended) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said photosensitive ~~photoconductive~~ paste in step (b) is made by mixing conductive metal powder and resin with solvent and photosensitive emulsion.

3. (Currently Amended) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said photosensitive ~~photoconductive~~ gate material in step (d) is made by mixing conductive metal powder and resin with solvent and photosensitive emulsion.

4. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said dielectric material in step (c) is made by mixing dielectric powder chosen from the group of SiO_2, Na_2O, Li_2O, PbO_2 and BO_2, and resin with solvent.

5. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein sintering in step (b) is processed for about 30 minutes at a temperature in the range of 480 °C to 560 °C in an air atmosphere.

6. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein sintering in step (d) is processed for about 30 minutes at a temperature in the range of 480 °C to 560 °C in an air atmosphere.

7. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, further comprising a step of sintering said layer of dielectric material to burn away residual organic materials in each layer after depositing said layer of etchable dielectric material in step (c).

8. (Original) The method for fabricating a cathode plate of a carbon nano tube field

emission display as claimed in claim 7, wherein said sintering step in step (c) is processed for about 30 minutes at a temperature in the range of 480 °C to 540 °C in an air atmosphere.

9. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein step (f) further includes a step of sintering to burn away residual organic materials in each layer before filling said field emission regions with a carbon nano tube emission layer.

10. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein each photolithography process includes the steps of defining a pattern by a photo-mask after pre-bake, photo exposure and developing.

11. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said carbon nano tube emission layer in step (f) is filled on said cathode electrode layer by an electrical deposition method.

12. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 11, wherein said carbon nano tube paste is made by mixing a dispersant with carbon nano tube powder of 3-50 weight percentage and solvent.

13. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said carbon nano tube emission layer in step (f) is filled by an electrical deposition method comprising the steps of forming

a photoresist layer above said gate electrode layer, depositing a carbon nano tube paste into said field emission regions electrically, and sintering to remove residual organic materials in each layer of said cathode plate in a high temperature oven.

14. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 13, wherein said sintering step after depositing said carbon nano tube paste into said field emission regions is processed for about 30 minutes at a temperature in the range of 480 °C to 500 °C in a nitrogen atmosphere.

15. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said carbon nano tube emission layer in step (f) is filled on said cathode electrode layer by a photolithography method.

16. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 15, wherein said photosensitive carbon nano tube paste is made by mixing photoresist with carbon nano tube powder of 5-30 weight percentage and silver powder of 5-30 weight percentage.

17. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 1, wherein said carbon nano tube emission layer in step (f) is filled by a photolithography method comprising the steps of depositing a layer of photosensitive carbon nano tube paste on the surface of said cathode plate, defining a pattern for said carbon nano tube emission layer by alignment and exposure, and sintering to remove residual organic materials in each layer of said cathode plate in a high temperature oven.

18. (Original) The method for fabricating a cathode plate of a carbon nano tube field emission display as claimed in claim 17, wherein said sintering step after depositing said carbon nano tube paste into said field emission regions is processed for about 30 minutes at a temperature in the range of 480 °C to 500 °C in a nitrogen atmosphere.

19. (Currently Amended) A method for fabricating a cathode plate of a carbon nano tube field emission display, said method comprising the steps of:

(a) providing a transparent substrate;

(b) depositing a layer of photosensitive ~~photoconductive~~ paste on said transparent substrate, patterning said layer of photosensitive ~~photoconductive~~ paste using a photolithography process, and sintering to form a cathode electrode layer;

(c) printing a carbon nano tube emission layer on said cathode electrode layer by a screen printing method;

(d) depositing a layer of etchable dielectric material on said carbon nano tube emission layer, said cathode electrode layer and said transparent substrate;

(e) depositing a layer of photosensitive ~~photoconductive~~ gate material on said layer of dielectric material, patterning said layer of photosensitive ~~photoconductive~~ gate material using a photolithography process, and sintering to form a gate electrode layer; and

(f) using said gate electrode layer as a protecting film to etch said layer of dielectric material with a photolithography process and expose said carbon nano tube emission layer above said cathode electrode layer, and sintering to remove residual organic materials in each layer.

Claims 20-28 are canceled as being to an invention non-elected without traverse.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: the prior art does not teach or suggest the method of claim 1, particularly the steps of depositing a layer of photo-sensitive gate material, patterning the layer of gate material using a photolithography process, sintering the gate material to form a gate electrode, and using the gate electrode layer as a protecting film to pattern the layer of dielectric material using a photolithography process to form field emission regions above the cathode layer; and filling the field emission regions with a carbon nano tube emission layer; nor the process of claim 19, particularly the steps of printing a carbon nanotube emission layer on the cathode electrode layer by screen printing, depositing a layer of photo-sensitive gate material, patterning the layer of gate material using a photolithography process, sintering the gate material to form a gate electrode, and using the gate electrode layer as a protecting film to etch the layer of dielectric material. Claims 2-18 depend from claim 1 and are thus allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Directions for Responses

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Ramsey whose telephone number is (571) 272-2462. The examiner can normally be reached on M-F from 9 to 5.

Kenneth J Ramsey

KENNETH J. RAMSEY
PRIMARY EXAMINER